

CLAIMS:

1. A method of collecting the performance data for a storage network including at least a computer, at least a storage and at least a network device for communication of input/output data between said computer and said storage, comprising the steps of:

collecting the performance data from at least selected one of said computer, said storage and said network device; and

changing selected one of the frequency and the range of collecting the performance data based on said collected performance data and the conditions set for the performance data collection.

2. In a storage network system including at least one computer system, at least one external storage and at least one network device for communication of input/output data between said computer and said storage, a method of collecting the performance data for selected one of said computer system, said external storage and said network device and the performance data for the software operated on selected one of said computer system, said external storage and said network system, comprising the steps of:

determining the timing of updating selected one of and the time interval and the requirement of performance data collection, based on the performance data collected in advance;

selecting an updated element of which selected one of the time interval and the requirement of performance data collection is to be changed, from a plurality of elements for which the performance data is to be collected;

determining selected one of the requirement and the time interval of performance data collection for said selected elements; and

updating selected one of the time interval and the frequency of performance data collection while at the same time updating the frequency of performance data collection in accordance with said timing.

3. A method of collecting the performance data according to Claim 2,

wherein the timing determined in said timing determining step is selected one of a time point when the value of a specific performance item obtained for a specific collected element exceeds or decreases below a predetermined reference value and a time point when the change in the value of said performance item exceeds or decreases below a predetermined reference value.

4. A method of collecting the performance data according to Claim 2,

wherein said step of determining said timing includes the steps of:

determining the difference between the value of a specific item obtained for a specific collected element and a predetermined reference value; and

setting said timing as a time point when said difference exceeds or decreases below a reference value.

5. A method of collecting the performance data according to Claim 2,

wherein said timing determining step includes the step of setting said timing as a time point when the change in the value of a specific performance item obtained for a specific collected element exceeds or decreases below a specific reference value.

6. A method of collecting the performance data according to Claim 2,

wherein said timing determining step includes the step of setting said timing as selected one of a time point when the value of a specific performance item obtained for a specific collected element ceases to be excessively large or small and a time point when the sign that said value becomes excessively large or small disappears.

7. A method of collecting the performance data according to Claim 2,

wherein said collected element selecting step includes the step of selecting said collected element based on the data defining the performance interdependency relation between the collected elements stored in advance.

8. A method of collecting the performance data according to Claim 3,

wherein said collected element selecting step includes the steps of:

setting a collected element constituting the motive of determining said timing in said timing determining step as an origin; and

selecting said collected element on the path on the upstream side imposing a performance load on said collected element constituting said origin, based on the data defining the performance interdependency relation between the collected elements and said collected element constituting said origin.

9. A method of collecting the performance data according to Claim 3,

wherein said collected element selecting step includes the steps of:

setting a collected element constituting the motive of determining said timing in said timing determining step as an origin; and

selecting said collected element on the path on the downstream side imposed with a performance load by said collected element constituting said origin, based on the data defining the performance interdependency relation between the collected elements and said collected element constituting said origin.

10. A method of collecting the performance data according to Claim 3,

wherein said collected element selecting step includes the steps of:

setting a collected element constituting the motive of determining said timing in said timing determining step as an origin; and

selecting said collected element on the path tracing said interdependency relation on the upstream side imposing a performance load and the downstream side imposed with a performance load, by use of the performance interdependency relation between the collected elements.

11. A method of collecting the performance data according to Claim 3,

wherein said collected element selecting step includes the steps of:

setting a collected element constituting the motive of determining said timing in said timing determining step as an origin, and

selecting a collected element on the path tracing the interdependency relation on the upstream side imposing a performance load, a collected element on the path tracing the interdependency relation on the downstream side imposed with a performance load and a collected element on the path tracing the interdependency relation on the upstream and downstream sides with each of said collected elements on said path as a new origin, by use of the performance interdependency relation between the collected elements.

12. A method of collecting the performance data

according to Claim 2,

wherein said step of selecting, from said elements from which the performance data are to be collected, a collected element for which selected one of the time interval and the requirement of performance data collection is to be changed, includes the step of collecting the hitherto uncollected values of a specific performance item of the collected element selected in said collected element selecting step.

13. A method of collecting the performance data according to Claim 2,

wherein said step of selecting, from said elements from which the performance data are to be collected, a collected element for which selected one of the time interval and the requirement of performance data collection is to be changed, includes the step of more frequently collecting the values of a specific performance item of the collected element selected in said collected element selecting step.

14. A method of collecting the performance data according to Claim 2,

wherein said step of selecting, from said elements from which the performance data are to be collected, a collected element for which selected one of the time interval and the requirement of performance data collection is to be changed, includes the step of ceasing to collect the hitherto collected values of a specific performance item of the collected element

selected in said collected element selecting step.

15. A method of collecting the performance data according to Claim 2,

wherein said step of selecting, from said elements from which the performance data are to be collected, a collected element for which selected one of the time interval and the requirement of performance data collection is to be changed, includes the step of less frequently collecting the values of a specific performance item of the collected element selected in said collected element selecting step.

16. In a storage network system including at least one computer system, at least one external storage and at least one network device for communication of input/output data between said computer and said storage, a method of collecting the performance data for selected one of said computer system, said external storage and said network device and the performance data for the software operated on selected one of said computer system, said external storage and said network system, comprising the steps of:

determining the timing of changing selected one of the time interval and the requirement of performance data collection based on the performance data collected in advance and an instruction from the user;

selecting, from the elements for which the

performance data is to be collected, an element of which selected one of the time interval and the requirement of performance data collection is to be changed, based on the information defining the performance interdependency relation between the collected elements stored in advance and the information on the range of performance data collection designated by the user;

determining selected one of the time interval and the requirement of performance data collection for said selected element; and

updating the frequency of performance data collection in accordance with selected one of the time interval and the requirement of performance data collection and said timing.

17. A program for collecting the performance data, comprising the steps of:

receiving the information including a resource for which the performance data designated by the user from a first program is to be collected, a metrics constituting an item of performance data collection of said resource, and the range and the time interval of performance data collection in a storage network including said resource;

reading from said storage the data defining the performance interdependency relation between the resources stored in advance;

selecting, from the resources included in

said storage network, a resource for which the time interval of performance data collection is to be updated, based on said read information defining the performance interdependency relation between the resources and said received performance data collection range;

determining said time interval of performance data collection for said selected resource based on said received time interval of performance data collection; and

transmitting to a second program a performance data collection instruction from said resource selected in accordance with said determined time interval of performance data collection.

18. A system for collecting the performance data, comprising:

means for receiving the information including a resource for which the performance data is to be collected, a metrics constituting an item of performance data collection of said resource, and the range and the time interval of performance data collection in a storage network including said resource;

means for reading from said storage the data defining the performance interdependency relation between the resources stored in advance;

means for selecting, from the resources for which the performance data are to be collected, a

resource for which the time interval of performance data collection is to be updated, based on said read information defining the performance interdependency relation between the resources and said performance data collection range designated by the user;

means for determining said time interval of performance data collection for said selected resource;
and

means for transmitting a performance data collection instruction from said resource selected in accordance with said determined time interval of performance data collection.